DOCUMENT RESUME

ED 076 243 PS 006 451

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TITLE	Outerdirectedness as a Problem-Solving Approach in Relation to Developmental Level and Selected Task Variables.
INSTITUTION	California Univ., Los Angeles. Early Childhood Research Center.
SPONS AGENCY	Office of Economic Opportunity, Washington, D.C.; Office of Education (DHEW), Washington, D.C.
REPORT NO	OEO-CG-9938
PUB DATE	Oct 72
NOTE	30p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Age Differences; Behavioral Science Research; Child Development; *Cognitive Development; *Developmental Tasks; *Discrimination Learning; Early Childhood; Kindergarten; Motivation Techniques; Primary Grades; *Problem Solving; *Reinforcement; Technical Reports
IDENTIFIERS	*Outerdirectedness

ABSTRACT

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OUTERDIRECTEDNESS AS A PROBLEM-SOLVING APPROACH IN RELATION TO DEVELOPMENTAL LEVEL AND SELECTED TASK VARIABLES

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October, 1972

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This research was supported in part by the Early Childhood Research Center, Dr. Carolyn Stern, Director, Grant CG 9938 from the Office of Economic Opportunity. Data analyses were conducted in the facilities of the Campus Computing Network, UCLA.

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Abstract

This study examined variables related to problem-solving approaches of young children, using the theoretical framework provided by Zigler and his collaborators in their work on outerdirectedness. Four aspects of outerdirectedness were examined: developmental trends, effects of different types of reinforcement, effects of task difficulty, and pride in accomplishment. It was found that outerdirectedness: (1) decreased with age; (2) increased when the task was described as difficult; and (3) was associated with pride ratings of children. In regard to types of reinforcement, it was found that effectiveness of intrinsic reinforcement increased with age.

OUTERDIRECTEDNESS AS A PROBLEM-SOLVING APPROACH IN RELATION TO DEVELOPMENTAL LEVEL AND SELECTED TASK VARIABLES

While there are strong arguments for utilizing individualized instruction in education, there remains the problem of determining the individual characteristics of the child which are relevant to given educational variables. If we assume that particular motives and behaviors are a part of each new school child, two major questions emerge: (1) how does one measure these predispositions, especially in children too young to respond to verbal scales? and (2) how do the predispositions interact with specific situational variables?

One area that seems promising concerns differences in the way children approach a task or problem-solving situation. Some children are very attentive to the task, essentially unaware of other stimuli. Others are less attentive to the task per se and appear to be very much aware of or even dependent upon the tester or aspects of the external environment.

A clue to understanding this phenomenon might be found in the work of Zigler and his collaborators on outerdirectedness in mentally retarded children (e.g., Turnure & Zigler, 1964, Zigler & Yando, 1972). These authors have demonstrated that in addition to obvious cognitive differences, there are motivational differences between normal and retarded children in a task situation that leads to a generally poorer performance by retardates even when mental age is equated. The poorer performance of retardates was attributed to a relatively greater reliance on external or situational cues with little attempt to determine relationships among problem elements via their own resources. This outerdirected orientation is thought to arise basically because the retarded child has a history of high frequency of failure and expectations of failure. Since he has

learned to distrust his own solutions to a problem, he relies on external cues whenever they are available.

Similar differences in problem-solving orientations that have been observed in normal children, such as task vs. social orientation (Ruble & Nakamura, 1972) or task vs. investigator orientation (Keogh, 1971), may reflect a motivational process like the one described by Zigler and his collaborators. Any child could learn to distrust his own solutions either because he is at a slightly lower cognitive stage than his classmates or because parents and teachers set higher standards for him than he is able to meet. Either situation could create a perceived history of frequent failures and a desire to seek external aid in solving problems.

The purpose of the present study was to examine the nature of outerdirectedness in normal children, as both developmental (grades kindergarten to third) and individual difference phenomena. The measure of outerdirectedness used was glancing behavior. This measure was chosen for two reasons. First, it seemed logical that a child attempting to rely on external cues would glance away from the task in search of cues. Second, relationships between outerdirectedness and glancing have been indirectly demonstrated in previous studies. Turnure and Zigler (1964) found that retarded children not only were more imitative and more responsive to external cues than normal children but also glanced more. A combination of studies on field dependence have shown that this variable is also related to outerdirectedness and glancing. Massari and Mansfield (in press) found that field-dependent children, as measured by their reliance on external cues, were more outerdirected than field-independent children; while Keogh, Welles,and Weiss (1972) and Ruble and Nakamura (1972) found that field-dependent children glanced significantly more at the experimenter in a puzzle task situation than did field-independents. Four aspects of outerdirectedness

(glancing behavior) were examined: (1) developmental trends, (2) effects of different types of reinforcement, (3) effects of task difficulty, and (4) pride in accomplishment.

Developmental trends. It was expected in the present study that younger children would demonstrate more of an outerdirected orientation, as measured by their tendency to glance away from the task, than would older children. Theoretically, this developmental trend should occur because, for the very young child, outerdirectedness should more likely result in success than should reliance on poorly developed cognitive skills (Turnure & Zigler, 1964). The report by Zigler and Yando (1972) that younger children were more imitative than older children is consistent with this reasoning. However, this observation must be considered with due reservation since these authors also pointed out that previous findings have not found a consistent age effect when reliance on an external cue in a problem-solving situation was used as the measure of outerdirectedness.

Type of reinforcement. Previous research examining the effectiveness of different types of reinforcers have found that lower-class children are more responsive than middle-class children to tangible as opposed to intangible reinforcers (Terrell, Durkin, & Wiesley, 1959; Zigler & deLabry, 1962) and to social reinforcement that emphasized praise (good) as opposed to correctness (right) (Zigler & Kanzer, 1962). In addition, there is evidence that age may be related to effectiveness of reinforcement. Young children were found to be more responsive to social as opposed to nonsocial reinforcement (Lewis, Wall, & Aronfreed, 1963). Also, performance-oriented feedback was found to be more effective for both age groups. This combination of findings would seem to indicate that at least two kinds of factors are involved in reinforcement effectiveness: (1) developmental level and (2) history of reinforcement or motivational

factors. That is, older children may be better able to utilize abstract reinforcement but regardless of developmental level, motivational factors may predispose some children to prefer praise-oriented reinforcement while others prefer performance-oriented reinforcement.

In the present study, the effects of two types of reinforcement were examined: (1) intrinsic (knowledge of success available through direct observation) and (2) extrinsic (knowledge of success mediated through the exterimenter's verbal praise) (Baron & Ganz, 1972). This method of differentiating reinforcement was chosen in order to maximize the distinction between correctness and praise. Previous findings concerning the differential effectiveness of these types of reinforcers have been inconsistent (Zigler & Kanzer, 1962; McGrade, 1966); and it is likely that the inconsistency results from the fact that both types were verbally administered by the experimenter in these studies. As Baron and Ganz (1972) point out, a young child probably does not perceive sufficient psychological distance between being told he is right and being told he is good.

On the basis of the research cited above, and the hypothesis relating developmental level to outerdirectedness, it was expected that older children would perform better than younger children under intrinsic reinforcement conditions. Under extrinsic conditions it was expected either that there would be no age effect or that younger children would perform better than older children. Previous research is inconsistent on this issue. In addition, an interaction between outerdirectedness and effectiveness of reinforcement was expected such that outerdirected children would perform better under extrinsic reinforcement conditions than under intrinsic conditions whereas the reverse would obtain for innerdirected children.

Task difficulty. According to Turnure and Zigler (1964), outerdirectedness is associated with expectancy to fail. In the present study expectancy to fail

was manipulated by instructed task difficulty, under conditions of both actual differences in task difficulty and of equal task difficulty. Children were told either that the task was very easy and they should have no trouble doing it or that the task was very hard and they would probably not be able to do it. It was hypothesized that when children expected to fail they would show a greater frequency of glancing than when they expected to succeed.

A second reason to manipulate instructed task difficulty was to observe performance on the focal task as a function of expectancy and outerdirectedness. Crandall (1969) reviewed research which indicates that perceived expectations influence task performance such that if a person expects to succeed, he will in fact perform better than if he does not expect to succeed. It was hypothesized that the supposed individual differences in expectancy represented by outerdirectedness would interact with manipulated expectancy. Under these circumstances, outerdirected children would do better than innerdirected children on the task perceived to be easy while innerdirected children would do better than outerdirected children on the task perceived to be hard. That is, for outerdirected children, the general expentancy to fail coupled with a situation-specific expectancy to succeed should produce a condition in which effort would be put forth and would pay off. A similar situation would be produced for innerdirected children when their general expectancy to succeed is coupled with a situational expectancy to fail. In the remaining two combinations of predisposed and manipulated expectancies, the task would be perceived as too easy or too hard to make effort worthwhile. These predictions are consistent with the findings of Nakamura and Ellis (1964).

Pride. The motivation to achieve has been described as the capacity for taking pride in accomplishment (Atkinson, 1964). Previous research has found that pride after success or failure is influenced by whether the subject per-

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ceives that outcomes are internally or externally caused. Greater pride for success or greater shame for failure is related to internal attributions (Parsons & Ruble, 1972; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1972). To the extent that inner- and outerdirected children perceive their accomplishments as being caused by different factors, it might be expected that inner- and outerdirectedness would be differentially related to taking pride in accomplishment. In relation to intrinsic-extrinsic types of reinforcement, it seems likely that innerdirected children would take pride primarily in a success for which they felt personally responsible. In outerdirected children, however, different types of reinforcement may not affect pride since these children tend to rely on external cues and thus feel that most of their successes are externally caused. Thus, it was hypothesized that type of reinforcement would interact with outerdirectedness such that nonglancers would feel more pride about their performance on the Baron and Ganz (1972) cups game under intrinsic conditions than under the extrinsic condition, while there would be no difference for glancers.

Pride for succeeding on the easy design or for failing on the hard design was also expected to be related to outerdirectedness. The exact nature of the relationship cannot be specified since alternative predictions and explanations are available.

Method

Subjects

The Ss were 128 kindergarten through 3rd graders from a middle-class Los Angeles elementary school. There were 16 girls and 16 boys in each grade. This was an age graded school so that children in each successively higher grade level have a higher mean age than in the preceding grade.

Procedure

Glancing measures. The first- and second-grade Ss participated in two sessions, approximately a month apart, in which glancing measures were taken. The kindergarten and third graders were tested only in the second session procedures. During the first session, two females Es were present in the experimental room. E1 accompanied S between the classroom and the experimental room and was presented to S as "in charge." E2 remained in the room, positioned behind a screen constructed of wood, which was tilted just enough to allow E2 to see the S's eyes. The S was told that E2 was just helping get some things ready for a later task. Thus, the S thought E2 was working on something behind the screen when in fact she was recording S's glances away from the tasks. The tasks were two puzzles adapted from the faces and automobile items found in the object-assembly tests of the Wechsler Intelligence Scales for Children (WISC). Two minutes work time was allowed on each. E1 also recorded glances to establish the reliability of the measure. During the second session the Ss worked for two minutes on each of two block design items taken from the WISC. In cases where the S finished the design before the end of the two minute period, the score was pro-rated. For example, if the S glanced once in one minute of time on the task, he was assigned a score of two glances.

Since the reliability of the inter-experimenter scoring of glances ($r = .96$) in the first session was satisfactory, only E1 was present to record glances during the second session. After all the first and second grade Ss had completed both sessions, the correlation between glancing scores in the first and the second sessions was computed. It was decided that this correlation ($r = .60$) was of sufficient magnitude to allow use of only the second session recordings to divide the Ss into high and low groups of glancers. Another reason for making

this decision was that it permitted a considerable saving in work. It allowed for the deletion of the first session in the testing of the kindergarten and third grade Ss since the first session merely provided scores necessary to assess the reliability of the glancing scores.

Measurement of pride. Before the tasks in the second session were introduced, Ss were given practice moving the mouth on the large cardboard face, the same as the one used in a recent study by Parsons and Ruble (1972). Light indicator dots on the face allowed E to score the magnitude of affect or pride, which ranged from 1 (nonsmiling sad face) to 17 (smiling face), with the neutral point at 9.

Type of reinforcement. The procedure was almost identical to the one reported by Baron and Ganz (1972). The task required Ss to learn a simple color discrimination task in order to find an object hidden under one of three colored cups. For each S, the object was always hidden under the same cup. The critical cup was different for different Ss. Before each trial, the three cups were arranged in a predetermined random order. Between trials, a screen was placed in front of the cups to block S's view of the rearranging procedure.

Two conditions of reinforcement were employed, intrinsic and extrinsic. Under intrinsic reinforcement, E simply lifted the cup chosen by S as correct. No verbal feedback of any kind was given. Thus, the primary source of positive reinforcement was assumed to be S's intrinsic satisfaction at discovering he was correct when he saw the hidden object.

Under extrinsic reinforcement, E replaced the screen as soon as S had pointed to a cup and then said either "very good" if the response was correct or "sorry, try again," if it was incorrect. The S received no information from his own observation. Thus, the primary source of positive reinforcement was assumed to be S's enjoyment of social praise.

After 30 trials, S was told he got a lot correct in order to insure some consistency across the S's perceived outcome. The S was then asked to show how he felt about his performance by moving the mouth on the cardboard face.

Task difficulty. All Ss were given both block designs, with the order of presentation of task difficulty counterbalanced. After S had finished the color identification task described above, he was shown one of the designs, given the set of colored blocks, and asked to rearrange the blocks in order to make a design just like the one in the picture. In the case of the easy design he was told, "This one is very easy. You should be able to get it with no trouble." For the hard design he was told, "This one is very hard. You probably will not be able to get it." At this point, E started a stop watch and began recording glances. For the first and second grades, variations of block designs from the WISC tests were pilot tested so that the "easy" design could, in fact, be completed, or nearly so, within a two minute time period in order to induce a feeling of success across all Ss, as well as a perception that the task was indeed easy. The "hard" design was made difficult enough that Ss could not finish it within two minutes in order to induce a feeling of failure across all Ss. Most Ss finished the easy design before two minutes were up and were told "you got it" by E. If S had not finished after two minutes, E stopped him and said "you almost got it." On the hard design, Ss were stopped after two minutes and told, "you weren't able to get this one." Only three Ss finished the hard design before the end of two minutes. The child was then given the face and asked to show how he felt about how he did. This procedure was repeated for the second design. The Ss who had the hard design second were given an additional easy design to complete, after showing how they felt on the face, so that all Ss ended the experimental session with a success experience.

The procedure was the same for the kindergarten and third graders except that the block design tests in Easy and Hard conditions were pilot-tested to be of equal difficulty within each grade level and to be hard enough to take at least two minutes to finish. This was done to assess the instruction effect on performance independently of actual task difficulty, i.e., telling Ss that the task was easy or hard when in fact they were of equal difficulty. Only four Ss of all the kindergarten and third graders, finished either design before the end of two minutes. For the easy design, S was allowed enough time to finish. At the end of two minutes, E recorded S's score and, if it seemed necessary, helped position the blocks so that S would be able to finish. For the hard design, in order to insure perceived failure by S, E told S that time was up if before the two minute period was over, S had only one block left to position. In this case, the score on performance was recorded as a correct design completion. Thus, at the time the pride measures were taken, Ss thought they had succeeded on the easy design and failed on the hard design.

Teacher ratings. After testing was completed, teachers were asked to rate Ss on seven 7-point scales. The dimensions were achievement, shyness, self-confidence, wanting to do things alone, help-seeking, persistence, and expectations to succeed. Since these ratings were taken in the spring, the teachers had spent nearly eight months with the children and knew them quite well. The teachers returned the rating sheets within two days after they were distributed.

Results

The two columns of total glances in Table 1 show the mean number of glances for four minutes (two 2-minute periods) by grade and sex. As expected, an analysis of variance revealed a significant main effect for Grade, F (3, 120) = 13.24, $p < .001$. There was no significant main effect for Sex nor for the Grade x Sex

interaction. However, boys tended to have higher mean scores at the younger two grades, while girls had higher mean scores at the older two grades.

Insert Table 1 about here

The Ss in each grade were divided into glancing and nonglancing groups by a median split. In three of the grades, this division resulted in an even distribution: 16 glancers and 16 nonglancers. However, in the first grade, the median fell among the children who had glanced three times. It was decided in this case to divide between 2 and 3 glances since this division resulted in the closest approximation to equal n's in the two groups. Thus, in the first grade, there were 18 glancers and 14 nonglancers. The division points for the other grades were between 7 and 8 glances for kindergarten, between 2 and 3 glances for second grade, and between 1 and 2 glances for third grade.

For an index of validity of this division into glancers and nonglancers, its correspondence with the teacher's perceptions of the children was computed. A Grade by Groups (glancers and nonglancers) analysis of variance was performed on the seven teacher-rating scales. According to the description of outerdirectedness, glancers and nonglancers should be most differentiated on expectation to succeed. As shown in Table 2, this variable did have the mean difference of highest statistical significance $F(1, 120) = 12.18$, $p < .001$. Teachers also rated glancers as lower achievers in school ($p < .05$), lower in self-confidence ($p < .01$), wanting less to do things by themselves ($p < .01$), more help-seeking ($p < .01$), and more persistent ($p < .01$). The only score that did not differentiate glancers and nonglancers was shyness. The means of the the six ratings that were significantly different for glancers and nonglancers were conceptually in the same direction across all four grade levels.

Insert Table 2 about here

Type of reinforcement. The hypotheses were tested in a 4 (Grade) x 2 (Type of Reinforcement) x 2 (Groups) factorial design. In order to have equal n's (n=7) in the Type of Reinforcement x Groups cells, 16 Ss were dropped. The 16 Ss dropped were a random selection from among Ss closest to the median. This procedure served to increase the separation between glancing and nonglancing groups.

The three-way analysis of variance was performed on the dependent variable, the number of choices of the correct cup in the thirty trials of the color identification task. The hypothesis that there would be an interaction between Grade and Type of Reinforcement received some support $F(3, 96) = 2.36$, $.05 < p < .10$. An examination of Figure 1 reveals that the intrinsic reinforcement condition

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Insert Figure 1 about here

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was the main source of the interaction. This was confirmed by separate analyses of the two types of reinforcement. The grade effect was not significant under extrinsic reinforcement $F < 1$, but was significant under intrinsic reinforcement, $F(3, 48) = 3.71$, $p < .05$.

Contrary to expectations, the division into glancers and nonglancers was not related to performance in correct choice of cup. Neither the main effect for Groups, $F(1, 96) < 1$, nor the Groups x Type of Reinforcement interaction, $F(1, 96) < 1$, approached significance.

Task difficulty. In order to test the hypothesis that children would be more outerdirected (glance away from task) when they expected to fail (task described as hard) than when they expected to succeed (task described as easy), a

4 (Grade) x 2 (Sex) x 2 (Task Difficulty) repeated measures analysis of variance was performed on the glancing scores. Grade and Sex were between Ss factors and Task Difficulty the within Ss factor. The expected main effect for Task Difficulty, $F(1, 120) = 5.13$, $p < .05$, was found. Table 1 shows the division of the glancing scores by the task difficulty manipulation. The Ss glanced more when they expected the task to be hard in all cases except for 3rd grade girls. In general, boys were more affected by the task difficulty manipulation than were girls though this difference only approached significance, $F(1, 120) = 3.77$, $.05 < p < .10$. Also in the conditions where there was an actual difference in task difficulty (1st and 2nd graders), glancing was more affected by the manipulation (total mean difference = 2.64) than in the conditions where difficulty was manipulated only by instruction (total mean difference for kindergarten and 3rd graders = 0.88). However, this interaction was not statistically significant, $F(1, 126) = 1.90$, $p < .10$. Thus, even when the tasks were of equal difficulty and the difference in difficulty level was only manipulated by instructions, there was still a tendency to glance more when the task was presented as being very hard.

Evaluation of performance differences was limited to the kindergarten and third graders since these Ss were administered the two block design tasks of equal difficulty. The scores for each of the tasks ranged from 0-9, one point given for each block correctly placed. A repeated measures analysis of variance was performed on these performance scores. Between Ss factors were Grade and Groups (glancers or nonglancers). A within Ss factor was Task Difficulty. No support was found for the hypothesis that glancers would do better on the easy task and nonglancers would do better on the hard ($F < 1$). In fact, there were no significant differences between glancers and nonglancers on either the hard

or the easy designs ($F < 1$).

Pride. On the color identification task (cups game), the measure of pride reached a near ceiling effect toward feeling good. The means varied between 13-14 out of a maximum score of 15. This obviously limited the possibility of any significant effects in the 4 (Grade) x 2 (Groups) x 2 (Type of Reinforcement) analysis of variance.

Pride on the block design was evaluated by means of a 4 (Grade) x 2 (Sex) x 2 (Groups) x 2 (Task Difficulty) repeated measures analysis of variance. The analysis yielded two significant main effects, Task Difficulty and Groups, and two significant interactions, Grade x Groups and Grade x Sex. They will be considered in that order. The Task Difficulty effect, F (1, 96) = 65.76, $p < .001$, must be intepreted in conjunction with success-failure outcome, since success and failure were manipulated simultaneously with task difficulty. Thus, the Ss indicated more pride about succeeding on an easy task (mean = 12.31) than for failing on a hard task (mean = 8.53). This was consistent across grade levels and it gives evidence that the manipulation of success and failure across age groups was successful.

The effect for Groups, $F(1, 96) = 7.09$, $p < .01$, indicated that, overall, glancers had a lower level of pride than nonglancers (Means: glancers = 9.62, nonglancers = 11.22) The pattern of the relationship between glancers and nonglancers on pride was almost identical in the easy-success and hard-failure tasks. Figure 2 shows graphically this relationship. The Grade x Groups interaction, F (3, 96) = 7.01, $p < .001$, was consistent with the trends in Figure 2 that show that glancers tended to feel less proud of their performance than nonglancers in kindergarten, in particular, and through second grade while the

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Insert Figure 2 about here

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third graders showed an opposite tendency in which glancers exhibited more pride than nonglancers. Since the actual difficulty level of the block designs were equated in only the kindergarten and third graders, a separate analysis on these two grades was conducted. The Grade x Group interaction was clearly significant, F (1, 56) = 8.88, $p < .01$. Relative to nonglancers, glancers showed a low level of pride at the kindergarten level but a fairly high level of pride at the third grade. It should be noted that the differences between glancers and nonglancers on pride were not a simple reflection of actual performance differences since the results of the analysis of variance of the block design scores given earlier were nonsignificant for the differences between the performances of glancers and nonglancers and for the Grade x Groups interaction.

One other interaction, Sex x Grade, was significant, F (3, 96) = 3.13, $p < .05$. Again, a major source was a reversal between kindergarten and the third grade. Boys had a lower level of pride than girls at the younger age but the scores reversed at the third grade. However, no conclusion can be drawn about any developmental trend because the scores of the first grade Ss were not consistent with the trend. The girls had higher scores than the boys.

Discussion

Outerdirectedness as measured by glancing clearly decreased from kindergarten to third grade. This result is consistent with previous research showing that older children were less imitative than younger children (Zigler & Yando, 1972) and that reliance on external cues decreased with age (Balla, Styfco & Zigler, 1971). Further evidence of a developmental trend in outerdirectedness is the finding

in the present study that intrinsic reinforcement was significantly more effective for the higher two grades than for the lower two grades. This combination of findings seems to indicate that the developmental level of the child is importantly related to how he will approach a task, attempt to solve it, and to some motivational components in the process. Evidently as children become older, their problem-solving behavior becomes more internally oriented. They increasingly attempt to solve the task by means of inductive rules, glance away less from the immediate task, and perform better under more intrinsic reinforcers.

With regard to effectiveness of intrinsic versus extrinsic reinforcement, it is interesting to note that grade level was not a significant factor in determining effectiveness of extrinsic (social) reinforcement. This finding replicates results reported by Rosenhan and Greenwald (1965) but contradicts results reported by Zigler and Balla (1972). This discrepancy is particularly interesting since both of those earlier studies used the same task, the Marble-in-the-Hole game. The discrepancy can perhaps be resolved by examining the dependent variable. In both the present study and the Rosenhan and Greenwald study, in which no age effect of social reinforcement was found, the dependent variable was a performance score: number of cups correctly chosen in the former case and percentage of marbles placed in the reinforced hole in the latter case. However, Zigler and Balla's dependent variable was the amount of time the child was willing to spend at the task. Using this measure, they found a decrease with age in the amount of time the children were willing to continue the task under conditions of social reinforcement.

Thus, it appears that as children get older they are motived to perform by more than one kind of reinforcement--in the present study by both intrinsic

feedback and by extrinsic social reinforcement. However, they become increasingly less likely to remain working at a dull task for just social reinforcement if they are given the opportunity to stop. In other words, extrinsic reinforcement does not hinder the performance of older children, as compared to younger children, but may be less effective at maintaining their activity in a monotonous or nonchallenging task.

The task difficulty manipulation also affected glancing in the expected direction. Both glancers and nonglancers tended to glance more when they expected the task to be hard than when it was expected to be easy--a finding consistent with the contention that outerdirected glancing reflects an anticipation of failure. Since the classification into glancing and nonglancing groups did not interact with task difficulty, the difference found between the two groups in overall amount of glancing may reflect a difference in their expectation of success. That is, nonglancers may perceive their likelihood of success at any task, easy or difficult, as relatively greater than do glancers.

Glancing was found to be a quite good measure of outerdirectedness in some respects and questionable in others. It was highly reliable across raters and moderately reliable across situations. In regard to validity, the teachers' ratings conformed almost precisely to what would be predicted. Most notably, glancers at all four age levels were rated by teachers as less expecting of success. Further evidence of the validity of the glancing measure was given by the finding that it conformed to the prediction of decrease with age.

However, the division of the children into glancing and nonglancing groups did not seem to have any relationship to either of the performance measures used in this study--the cups color identification task and the easy and hard block designs. Glancing was not related to type of reinforcement,

task difficulty, nor to overall performance. In contrast, it is interesting that glancing did relate to perceptions of performance, as reflected in the measure of pride. At the kindergarten level, glancers had a lower level of pride than nonglancers. That is, glancers felt less proud after success and after failure than did nonglancers. At third grade this was reversed. There is no clear explanation for this pattern of findings, though a few reasons might be suggested. It is possible that at the younger grade, outerdirectedness reflects largely an over responsiveness to usual failure. That is, the glancers may have shown a lower level of pride because they somehow perceived their performance to be at a lower level than did the nonglancers, even though there was no actual performance difference. This explanation is similar to that reported by Katz (1967) to explain the finding that low achievers dispensed more self-criticisms and fewer self-approvals than high achievers and that these self-evaluations were unrelated to actual quality of performance. According to Katz, the standards of the low achievers "were so stringent and rigid as to be utterly dysfunctional. What they seem to have internalized was a most effective mechanism for self-discouragement. The child, in a sense, has been socialized to impose failure upon himself." A similar mechanism might be operating in the younger glancers. They adopt an outerdirected style perhaps associated with high standards that make failure expectancies almost inevitable. The reversal at third grade may reflect some kind of learning or adaptation process. That is, as a result of frequently experienced, real or perceived, failure, the glancers may gradually lower their standards or become resigned such that they would feel essentially neutral about failure, as the third graders do, and relatively good about any kind of success.

The results of the pride measure are also interesting in that the sex differences seem to parallel, except at the first grade, the differences between the glancers and nonglancers, the boys being similar to the glancers and the girls being similar to the nonglancers. The similarity in pattern also occurred on the teacher's ratings. Teachers rated girls as more achieving ($p < .05$), less help-seeking ($p < .05$), more persistent ($p < .01$), and more expecting of success ($p < .05$) than boys. It is known that boys tend to mature more slowly and do less well in the early elementary years than girls (Maccoby, 1966). Thus in the context of the expectation of failure hypothesis, it is possible that the similar pattern of pride between boys and glancers is more than coincidental. It implies that both boys and glancers are more expecting of failure than girls and nonglancers in these early years.

The results of the present study do not lend themselves to any particular applications with regard to individualized instruction within any given grade level. Type of reinforcement and task difficulty manipulations did not differentially affect the performance of glancers and nonglancers as expected. The one result relevant to instructional variables was the age effect of type of reinforcement. This finding suggests that extrinsic or social kinds of reinforcers are most effective for motivating young children (below second grade) to perform, while intrinsic and extrinsic reinforcers are equally effective for the older children.

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Footnotes

This research was supported in part by the Early Childhood Research Center, Dr. Carolyn Stern, Director, grant CG 9938 from the Office of Economic Opportunity, and in part by U.S. Office of Education, grant OEG-0-70-2655. Data analyses were conducted in the facilities of the Campus Computing Network, UCLA. The authors thank Helane Braveman for assistance in gathering the data, the the principal, Miss Kennedy, the staff, and the pupils at the Charnock School who particupated in the study. Requests for reprints should be sent to Charles Y. Nakamura, Department of Psychology, University of California, Los Angeles, California, 90024.

Table 1

Mean Glances by Grade, Sex, and Task Difficulty

Grade	Girls			Boys		
	Easy Design	Hard Design	Total Glances	Easy Design	Hard Design	Total Glances
Kinder-garten	3.56	3.69	7.25	4.24	4.81	9.06
First Grade	1.56	1.81	3.31	1.25	2.63	3.88
Second Grade	2.25	2.38	4.63	1.00	1.88	2.88
Third Grade	1.37	1.12	2.49	0.75	1.19	1.94
Mean Totals	2.19	2.25	4.42	1.81	2.63	4.44

Table 2

Mean Ratings of Teachers on Each of Seven Scales.

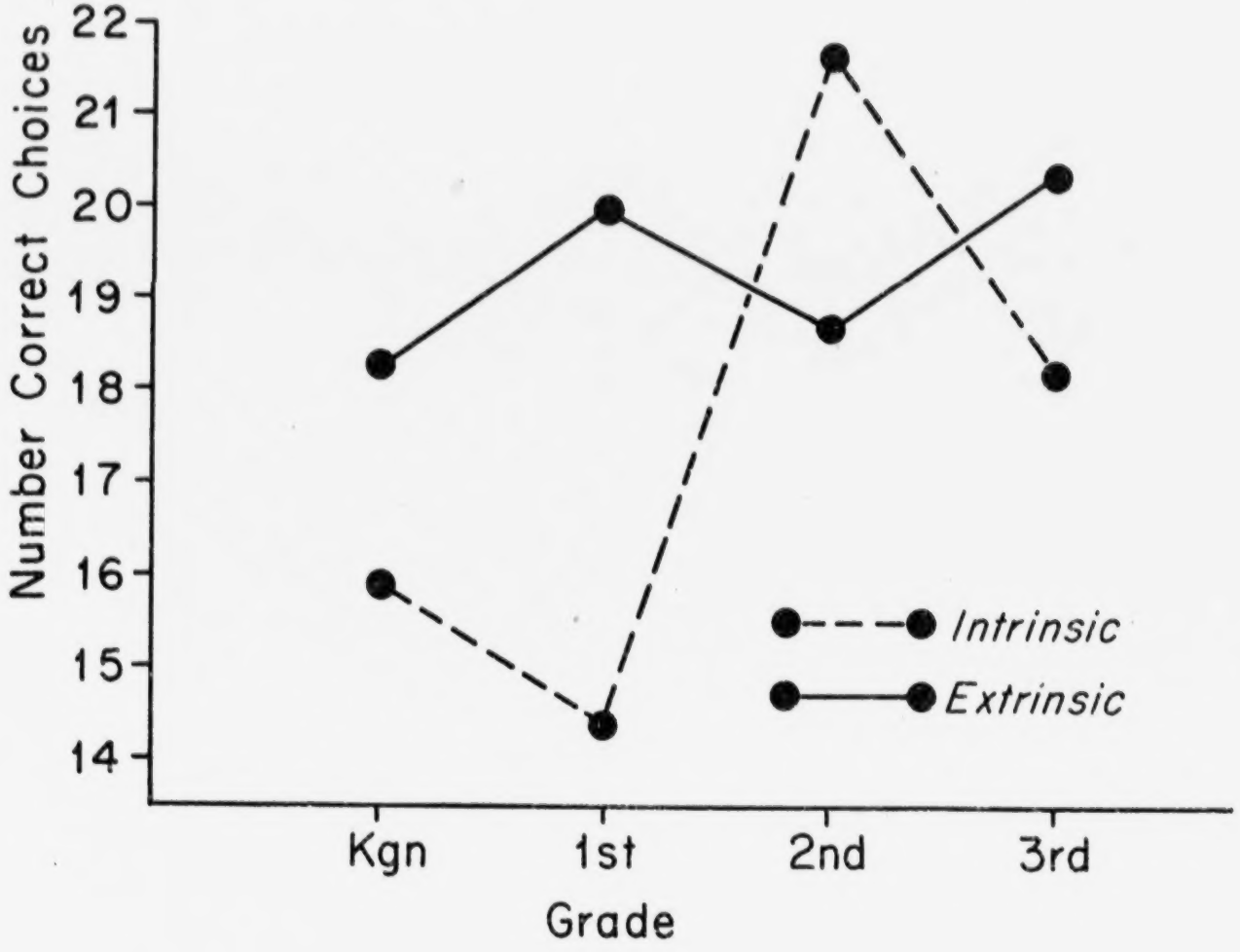
Variable	Glancers	Nonglancers	F
Achievement	3.6	4.5	6.17*
Shyness	3.1	3.1	.02
Low Self-Confidence	3.9	2.9	7.12**
Wanting to do Things by Self	4.3	5.3	9.12**
Help-Seeking	3.5	2.8	4.32*
Persistence	4.1	5.3	10.06**
Expects to Succeed	4.2	5.3	12.18***

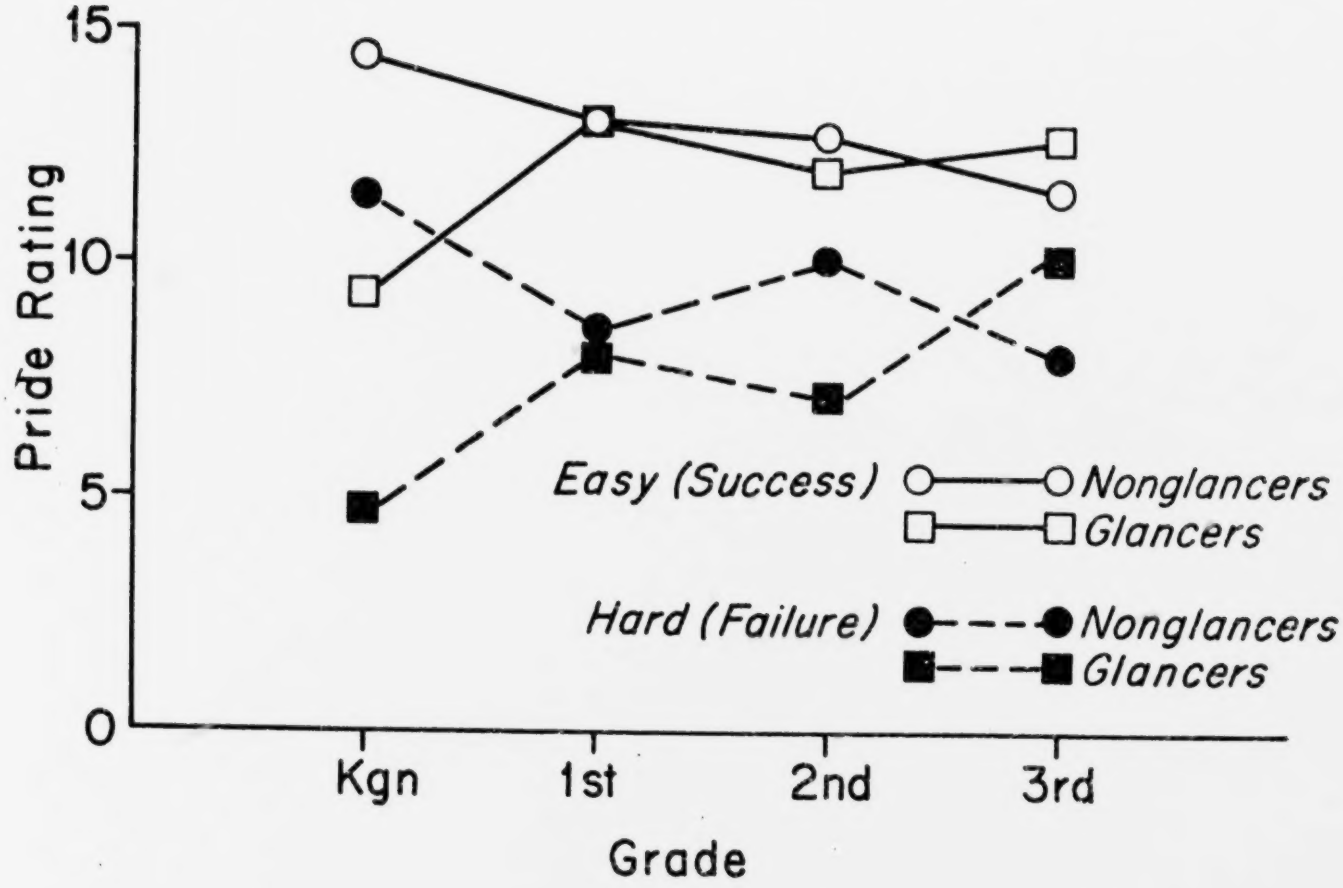
*$p < .05$; **$p < .01$; ***$p < .001$

Figure Captions

Figure 1. Mean number of correct choices on the cups game as a function of Grade and Type of Reinforcement.

Figure 2. Mean pride ratings as a function of Grade, Task Difficulty, and Glancing vs. Nonglancing Groups.


Number Correct Choices
22
21
20
19
18
17
16
15
14
Kgn
1st
2nd
3rd
Grade
Intrinsic
Extrinsic


15
10
5
0
Pride Rating
Kgn
1st
2nd
3rd
Grade
Easy (Success)
Nonglancers
Glancers
Hard (Failure)
Nonglancers
Glancers